

FIG. 1

FIGURE 1.
TRFP CHAIN 1, LEADER A

10	20	30	40	50	60
CTGCATCATGAAGGGGGCTCGTGTTCTCGTGCTTCTCTGGGCTGCCTTGCTCTTGATCTG					
C I M K G A R V L V L L W A A L L L I W					
70	80	90	100	110	120
GGGTGGAAATTGTGAAATTTGCCAGCCGTGAAGAGGGATGTTGACCTATTCCTGACGGG					
G G N C E I C P A V K R D V D L F L T G					
130	140	150	160	170	180
AACCCCGACGAATATGTTGAGCAAGTGGCACAATACAAAGCACTACCTGTAGTATTGGA					
T P D E Y V E Q V A Q Y K A L P V V L E					
190	200	210	220	230	240
AAATGCCAGAATACTGAAGAACTGCGTTGATGCAAAAATGACAGAAGAGGATAAGGAGAA					
N A R I L K N C V D A K M T E E D K E N					
250	260	270	280	290	300
TGCTCTCAGCTTGCTGGACAAAATATACACAAGTCCTCTGTGTTAAAGGAGCCATCACTG					
A L S L L D K I Y T S P L C -					
310	320	330	340	350	360
CCAGGAGCCCTAAGGAAGCCACTGAACTGATCACTAAGTAGTCTCAGCAGCCTGCCATGT					
370	380	390	400	410	
CCAGGTGTCTTACTAGAGGATTCCAGCAATAAAAGCCTGGCAATTCAAACAAAAAAA					

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FIG. 2

FIGURE 2.
TRFP CHAIN 1, LEADER B

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      10      20      30      40      50      60
      |      |      |      |      |      |
GGCCTGGCGGTGCTCCTGGAAAAGGATGTTAGACGCAGCCCTCCCACCCTGCCCTACTGT
  A  W  R  C  S  W  K  R  M  L  D  A  A  L  P  P  C  P  T  V

      70      80      90      100     110     120
      |      |      |      |      |      |
TGCGGCCACAGCAGATTGTGAAATTTGCCAGCCGTGAAGAGGGATGTTGACCTATTCT
  A  A  T  A  D  C  E  I  C  P  A  V  K  R  D  V  D  L  F  L

      130     140     150     160     170     180
      |      |      |      |      |      |
GACGGGAACCCCGACGAATATGTTGAGCAAGTGGCACAATACAAAGCACTACCTGTAGT
  T  G  T  P  D  E  Y  V  E  Q  V  A  Q  Y  K  A  L  P  V  V

      190     200     210     220     230     240
      |      |      |      |      |      |
ATTGGAAAATGCCAGAATACTGAAGAACTGCGTTGATGCAAAAATGACAGAAGAGGATAA
  L  E  N  A  R  I  L  K  N  C  V  D  A  K  M  T  E  E  D  K

      250     260     270     280     290     300
      |      |      |      |      |      |
GGAGAATGCTCTCAGCTTGCTGGACAAAATATACACAAGTCCTCTGTGTTAAAGGAGCCA
  E  N  A  L  S  L  L  D  K  I  Y  T  S  P  L  C  -  R  S  H

      310     320     330     340     350     360
      |      |      |      |      |      |
TCACTGCCAGGAGCCCTAAGGAAGCCACTGAACTGATCACTAAGTAGTCTCAGCAGCCTG

      370     380     390     400     410     420
      |      |      |      |      |      |
CCATGTCCAGGTGTCTTACTAGAGGATTCCAGCAATAAAAGCCTTGCAATTCAAACAAAA
  
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FIG. 3

FIGURE 3.
TRFP CHAIN 2, LONG FORM

10 20 30 40 50 60
 TGACACGATGAGGGGGGCACTGCTTGTGCTGGCATTGCTGGTGACCCAAGCGCTGGGCGT
 D T M R G A L L V L A L L V T Q A L G V
 70 80 90 100 110 120
 CAAGATGGCGGAAACTTGCCCCATTTTTATGACGTCTTTTTGCGGTGGCCAATGGAAA
 K M A E T C P I F Y D V F F A V A N G N
 130 140 150 160 170 180
 TGAATTACTGTTGGACTTGTCCCTCACAAAAGTCAATGCTACTGAACCAGAGAGAACAGC
 E L L L D L S L T K V N A T E P E R T A
 190 200 210 220 230 240
 CATGAAAAAATCCAGGATTGCTACGTGGAGAACGGACTCATATCCAGGGTCTTGGATGG
 M K K I Q D C Y V E N G L I S R V L D G
 250 260 270 280 290 300
 ACTAGTCATGACAACCATCAGCTCCAGCAAAGATTGCATGGGTGAAGCAGTTCAGAACAC
 L V M T T I S S S K D C M G E A V Q N T
 310 320 330 340 350 360
 CGTAGAAGATCTCAAGCTGAACACTTTGGGGAGATGAATCTTTGCCACTGATGCCCCTTC
 V E D L K L N T L G R -
 370 380 390 400 410 420
 TGAGCCCCATCCTCCTGCCCTGTTCTTTACACCTAAAGCTGGAATCCAGACACCTGTCCT
 430 440 450 460 470
 CACCTAATTCACTCTCAATCAGGCTGACTAGATAAAATAACTGCATCTTAAAAA

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FIG. 4

FIGURE 4.
TRFP I CHAIN 2, SHORT FORM

10	20	30	40	50	60
GACACGATGAGGGGGGCACTGCTTGTGCTGGCATTGCTGGTGACCCAAGCGCTGGGCGTC					
D T M R G A L L V L A L L V T Q A L G V					
70	80	90	100	110	120
AAGATGGCGGAGACGTGCCCCATTTTTTATGACGTCTTTTTTGCGGTGGCCAATGGAAAT					
K M A E T C P I F Y D V F F A V A N G N					
130	140	150	160	170	180
GAATTACTGTTGGACTTGTCCCTCACAAAAGTCAATGCTACTGAACCAGAGAGAACAGCC					
E L L L D L S L T K V N A T E P E R T A					
190	200	210	220	230	240
ATGAAAAAATCCAGGATTGCTACGTGGAGAACGGACTCATATCCAGGGTCTTGATGGA					
M K K I Q D C Y V E N G L I S R V L D G					
250	260	270	280	290	300
CTAGTCATGATAGCCATCAACGAATATTGCATGGGTGAAGCAGTTCAGAACACCGTAGAA					
L V M I A I N E Y C M G E A V Q N T V E					
310	320	330	340	350	360
GATCTCAAGCTGAACACTTTGGGGAGATGAATCTTTGCCACTGATGCCCCTTCTGAGCCC					
D L K L N T L G R -					
370	380	390	400	410	420
CATCCTCCTGTCCTGTTCTTTACACCTAAAGCTGGAATCCAGACACCTGTCCTCACCTAA					
430	440	450	460		
TTCACCTCTCAATCAGGCTGACTAGATAAAATAACTGCATCTTAAAAAA					

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FIG. 5

FIGURE 5.
TRFP CHAIN 2, TRUNCATED SHORT FORM

10	20	30	40	50	60
GACACGATGAGGGGGGCACTGCTTGTGCTGGCATTGCTGGTGACCCAAGCGCTGGGCGTC					
D T M R G A L L V L A L L V T Q A L G V					
70	80	90	100	110	120
AAGATGGCGGAGACGTGCCCCATTTTTTATGACGTCTTTTTTGCAGGTGGCCAATGGAAAT					
K M A E T C P I F Y D V F F A V A N G N					
130	140	150	160	170	180
GAATTACTGTTGGACTTGTCCCTCACAAAAGTCAATGCTACTGAACCAGAGAGAACAGCC					
E L L L D L S L T K V N A T E P E R T A					
190	200	210	220	230	240
ATGAAAAAATCCAGGATTGCTACGTGGAGAACGGACTCATATCCAGGGTCTTGATGGA					
M K K I Q D C Y V E N G L I S R V L D G					
250	260	270	280	290	300
CTAGTCATGCCATCAACGAATATTGCATGGGTGAAGCAGTTCAGAACACCGTAGAAGATC					
L V M P S T N I A W V K Q F R T P -					
310	320	330	340	350	360
TCAAGCTGAACACTTTGGGGAGATGAATCTTTGCCACTGATGCCCCTTCTGAGCCCCATC					
370	380	390	400	410	420
CTCCTGTCCTGTTCTTTACACCTAAAGCTGGAATCCAGACACCTGTCCTCACCTAATTCA					
430	440	450	460		
CTCTCAATCAGGCTGACTAGATAAAATAACTGCATCTTAAAAAA					

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CI Leader A

-20

CIMKGARVLLVLLWAALLLIWGGNC

-10

CI Leader B A W R C S W X R M L D A A L P P C P T B A A T A D C

[illegible]

	40	45	50	55	60	65	70
CI	E	N	A	R	I	L	K
	N	C	V	D	A	K	M
	T	E	E	D	K	E	N
	A	L	S	L	L	D	K
	I	Y	T	S	P	L	C

FIG. 7

[illegible][illegible]

FIG. 7 (con't.)

	45	50	55	60	65	70	75	80
C2L	A M K K I Q D C Y V E N G L I S R V L D G L V M T T I S S K D C M G E A V Q N							
C2S	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	I A - N E * * Y - - - - -	- - - - -	- - - - -
C2ST	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	P S T N I A W V K Q F R T P	- - - - -	- - - - -
PRO.	- - - - -	- - - - -	- - - - -	- - - - -	T T - S S (K) - - - - -	- - - - -	- - - - -	- - - - -

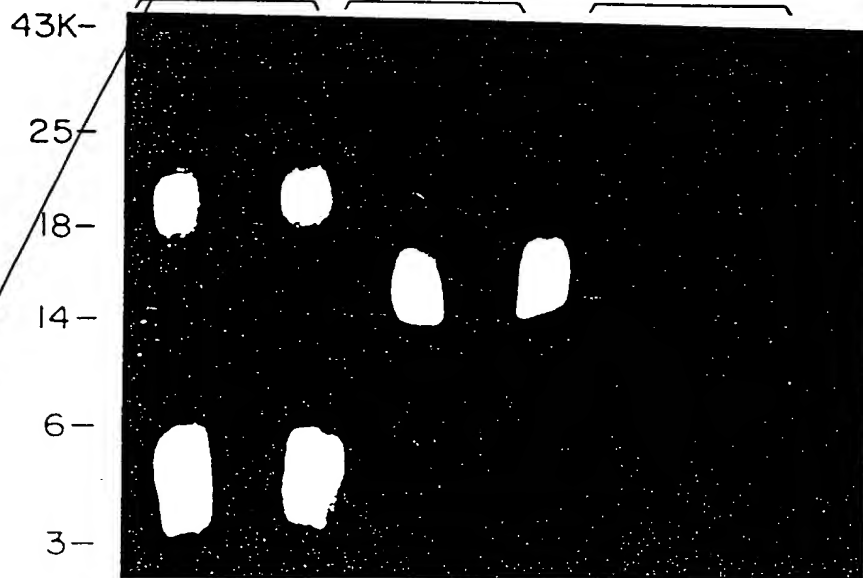
C2L	T V E D L K L N T L G R	85	90
C2S	- - - - -	- - - - -	- - - - -
PRO.	T V - A M -		

FIG. 8

d Fel-2 d Fel-4 d Fel-18 Biot 2° Ab only



6F9
Monoclonal Antibody Human Serum JgE No first antibody control



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FIG. 9

PATIENT #131.2 2° (TRFP:1°)

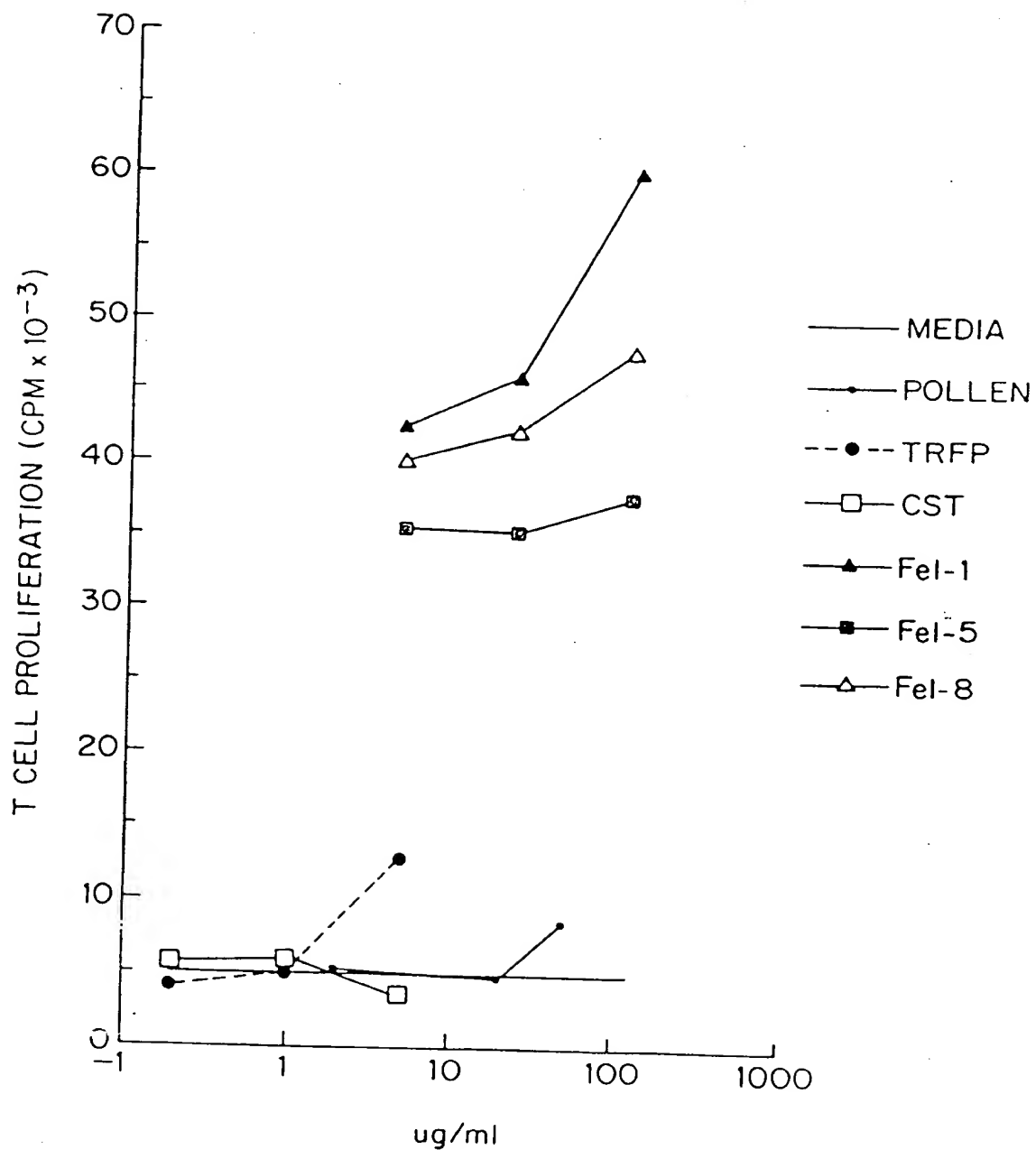
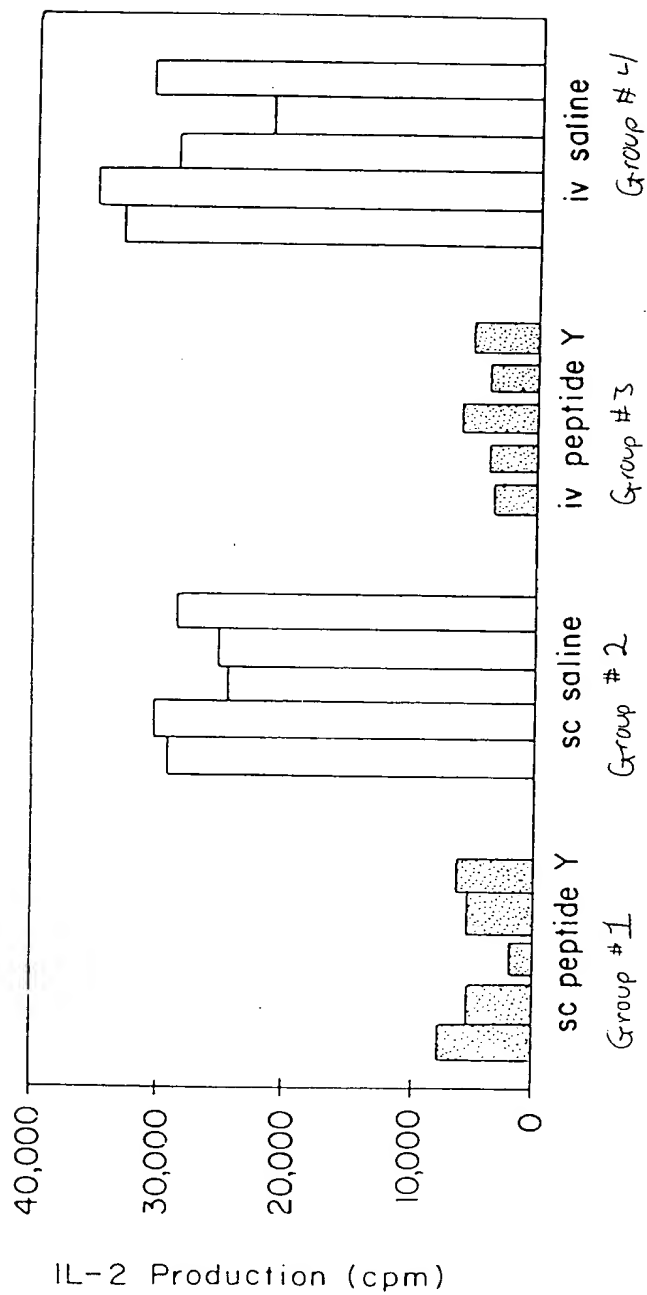


FIG. 10



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FIG. 11

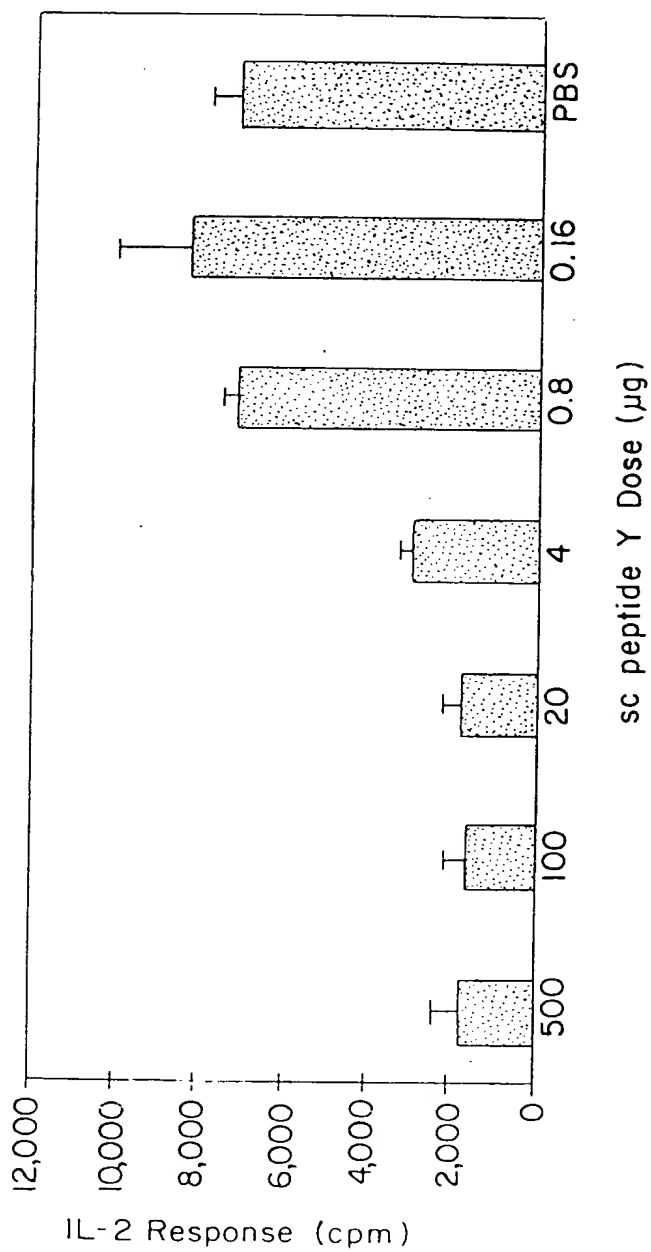


FIG. 12

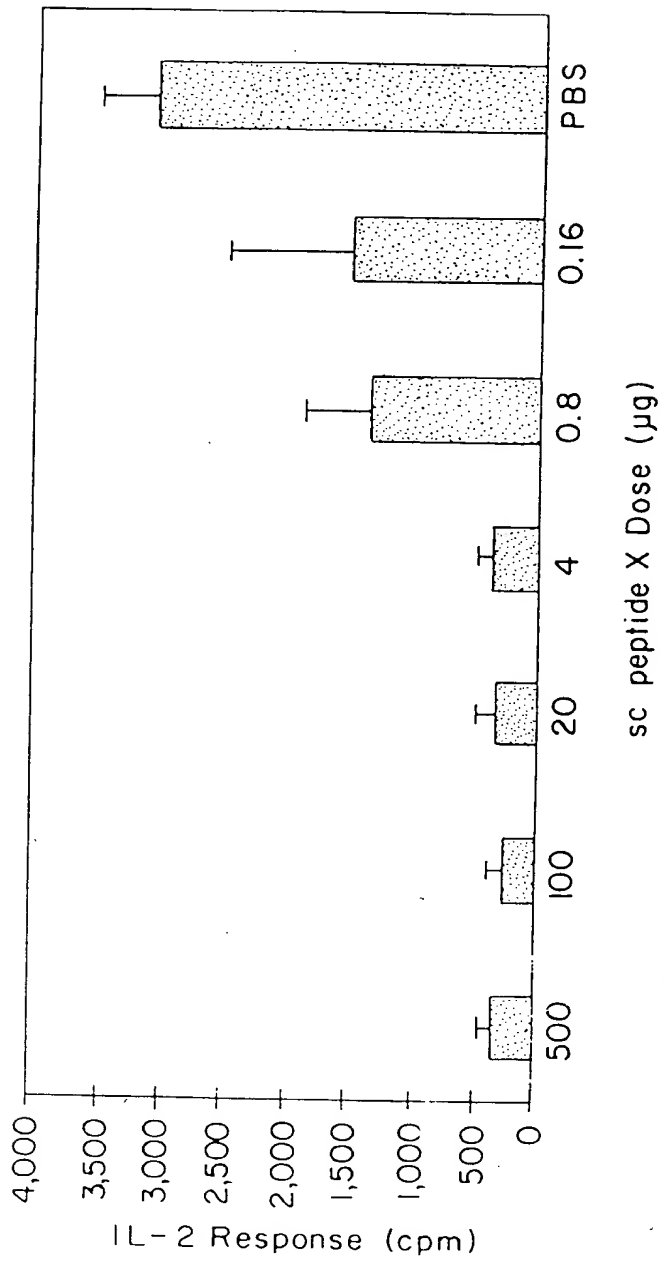
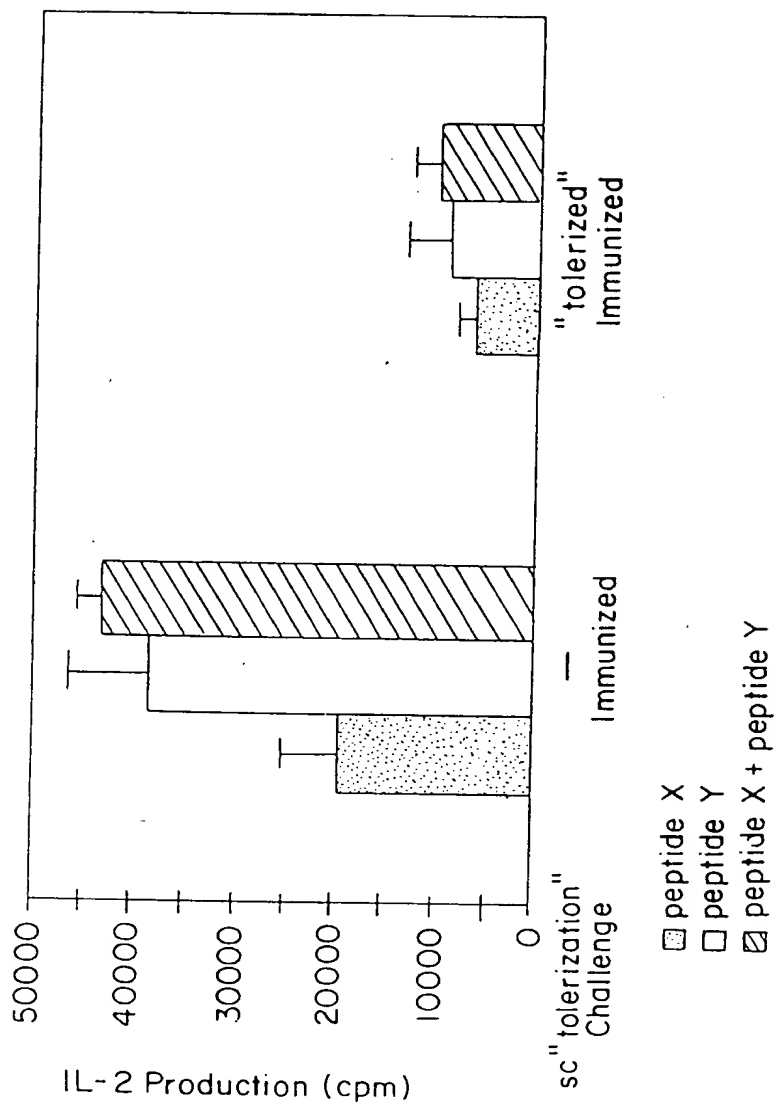


FIG. 13



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FIG. 14

LEGEND

- ▨ - Cultured with Peptide
- - Cultured without Peptide

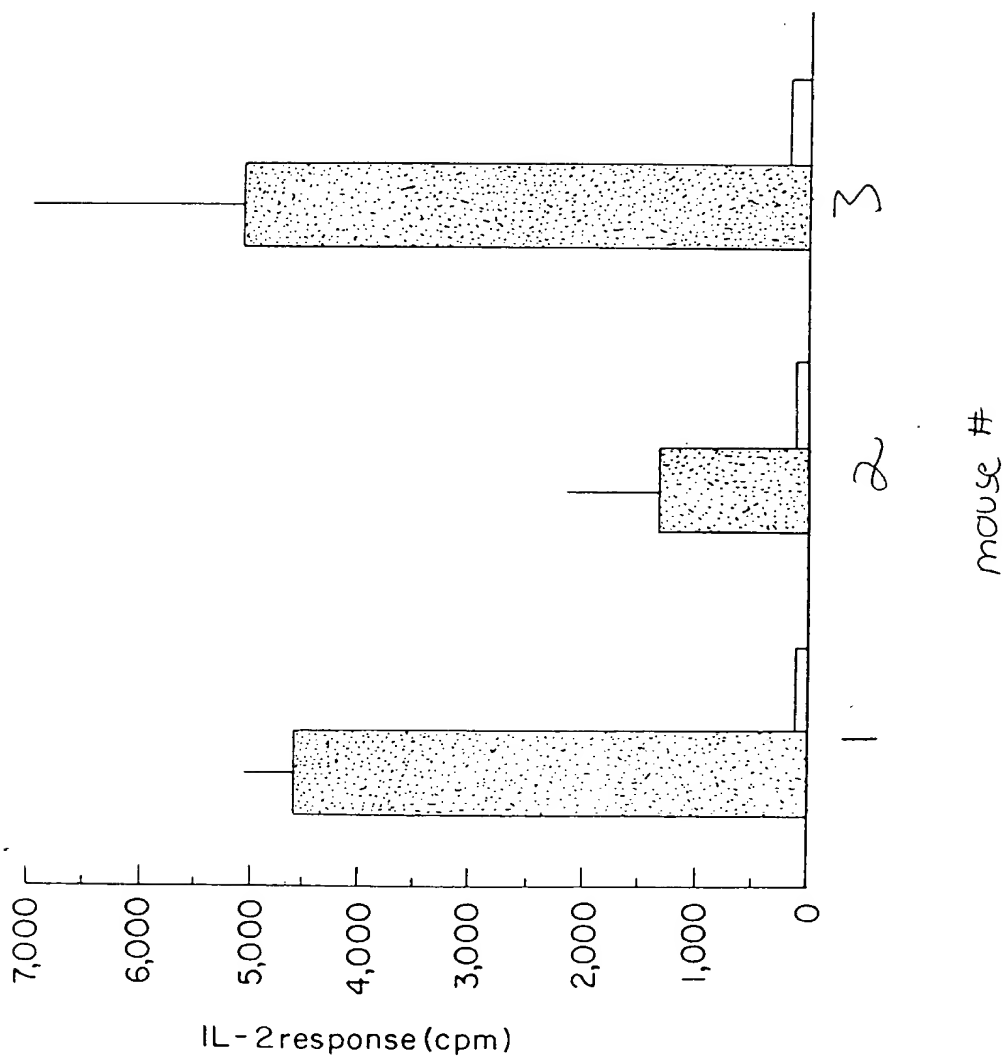


FIG. 15A & 15B

FIG. 15A

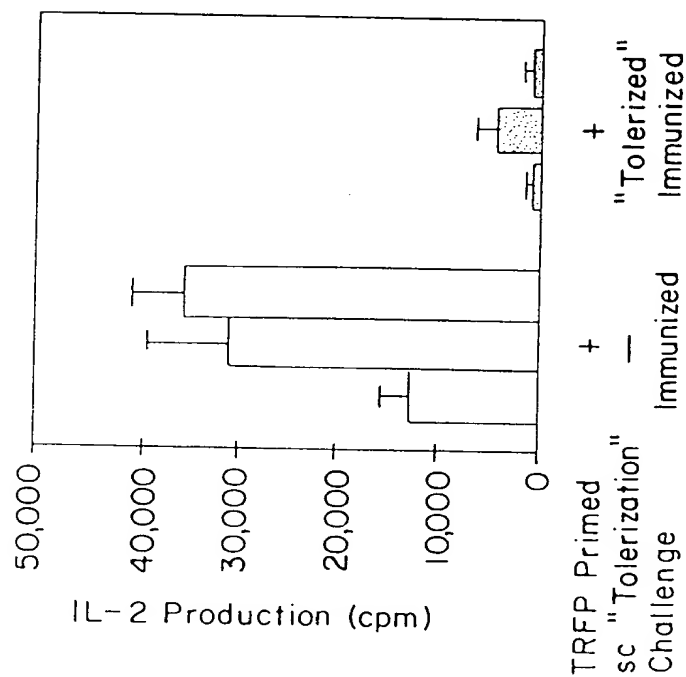


FIG. 15B

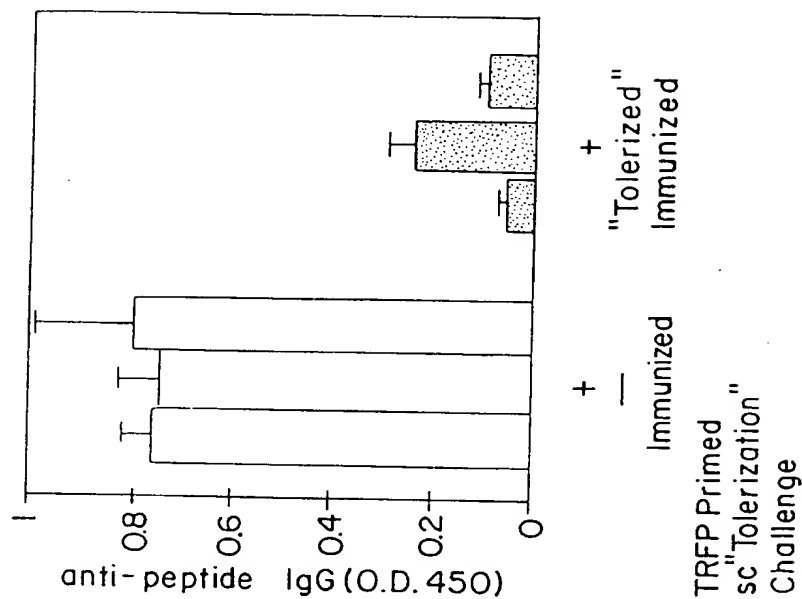


FIG. 16A & 16B

FIG. 16B

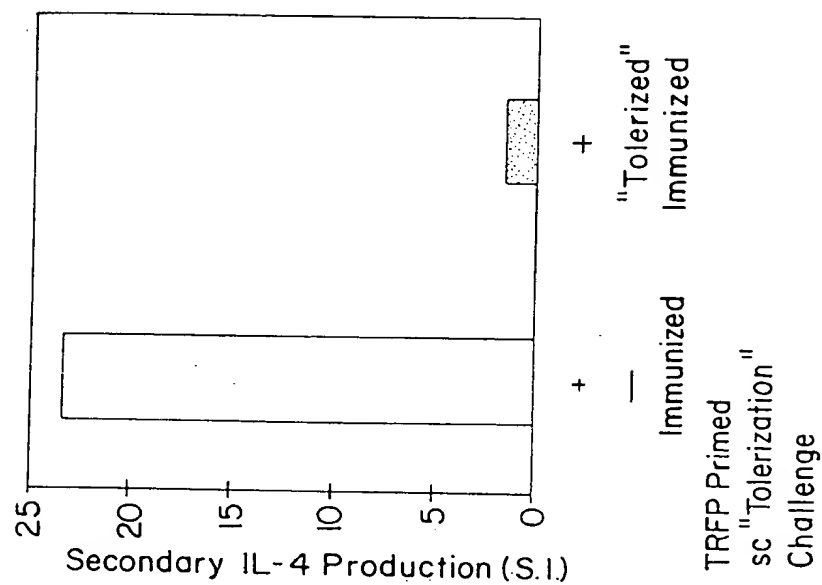


FIG. 16A

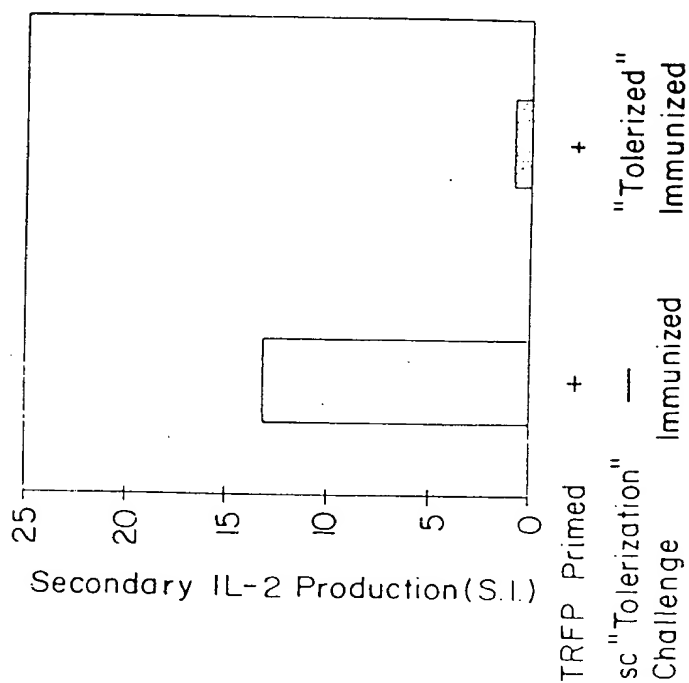


FIG. 17

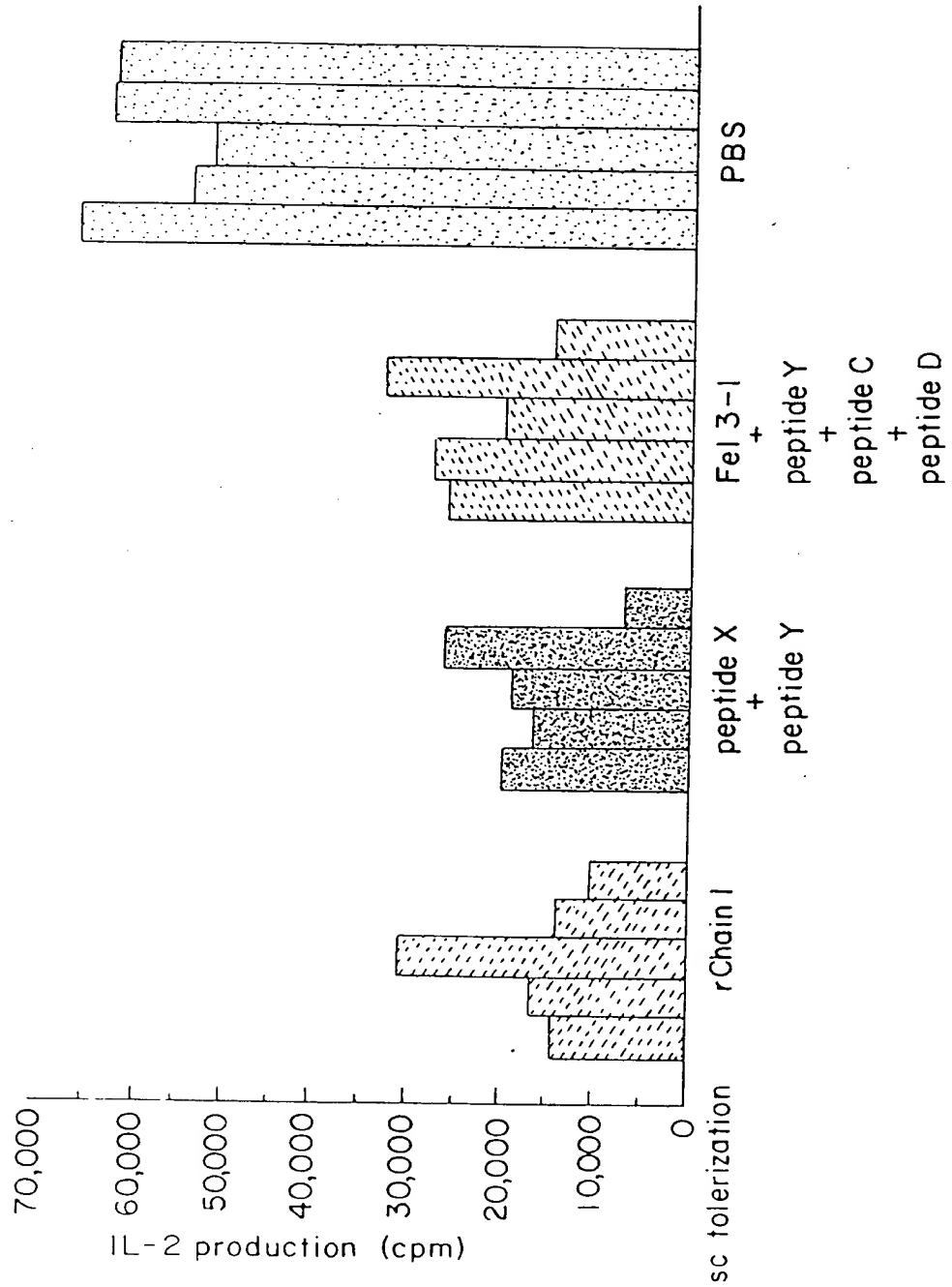


FIG. 18

Sequence

peptide
name

X	KRDVDLFLTGTPDEYVEQVAQYKALPV
Y	KALPVVLENARILKNCVDAKMTEEDKE
Z	FFAVANGNELLLDLSLTKVNATEPER
A	EEDKENALSLLDKIYTSPL
B	MGEAVQNTVEDLKLNTLGR
C	EEDKENALSLLDKIYT
D	NALSLLDKIYTSPL

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FIG. 19

Fel 32 VKMAETCPIFYDVFFAVA
Fel 33 FYDVFFAVANGNELLLD
Fel 34 NGNELLLDLSLTKVNATE
Fel 35 SLTKVNATEPERTAMKKI
Fel 36 ERTAMKKIQDCYVENGL
Fel 37 QDCYVENGLISRVLDGLV
Fel 38 ISRVLDGLVMTTISSSKDCM
Fel 38.I ISRVLDGLVMIAINE**DCM
Fel 39 MTTISSSKDCMGEAVQNTVELDKLNTLGF
Fel 39.I MIAINE**DCMGEAVQNTVELDKLNTLGF

FIG. 20



FIG. 21

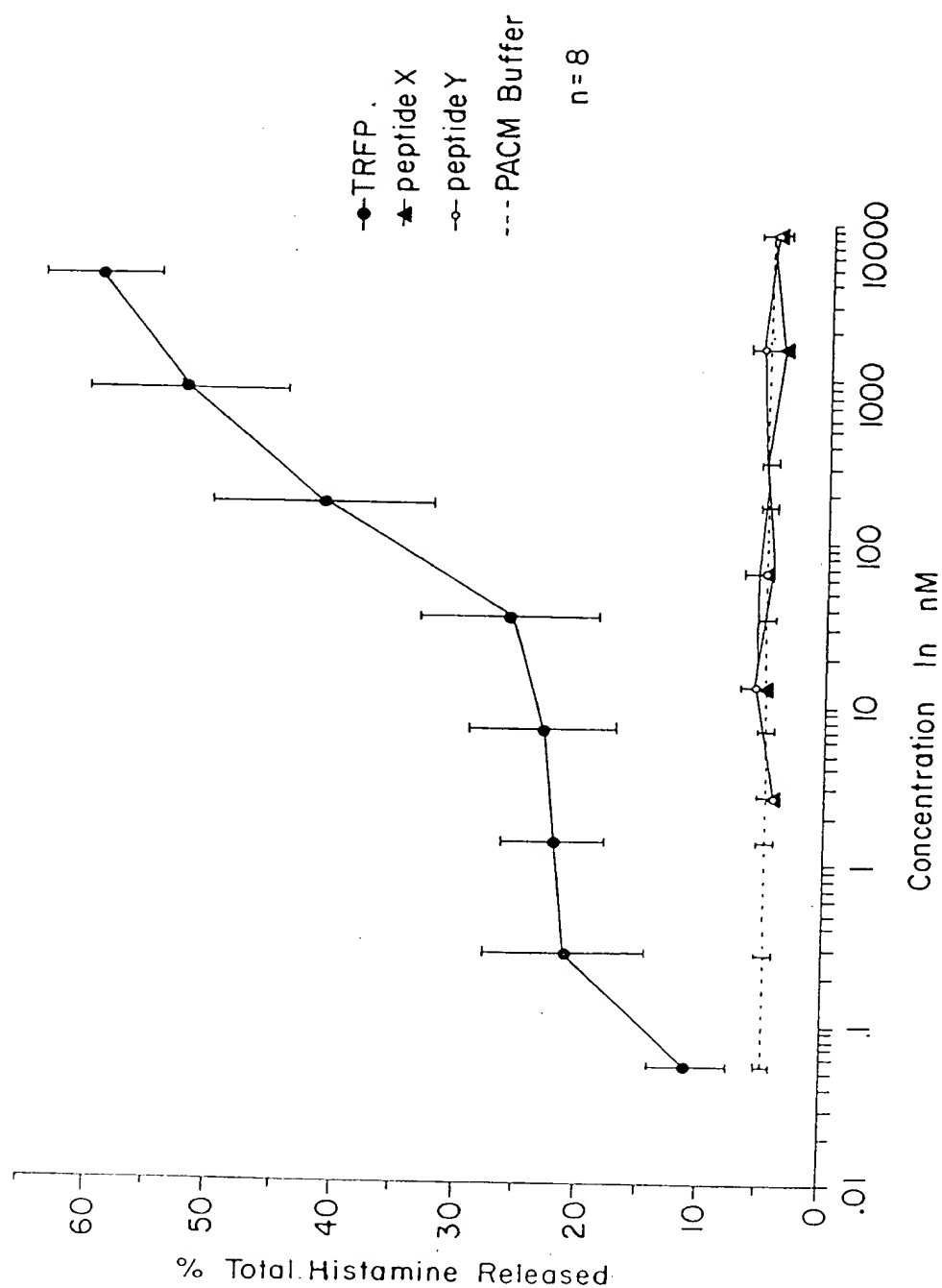


FIG. 22A

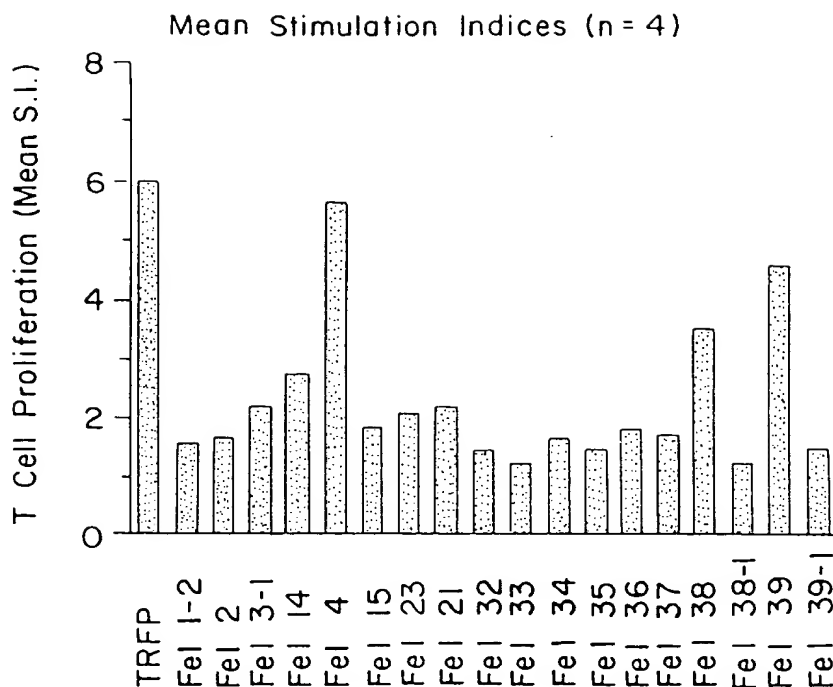


FIG. 22B

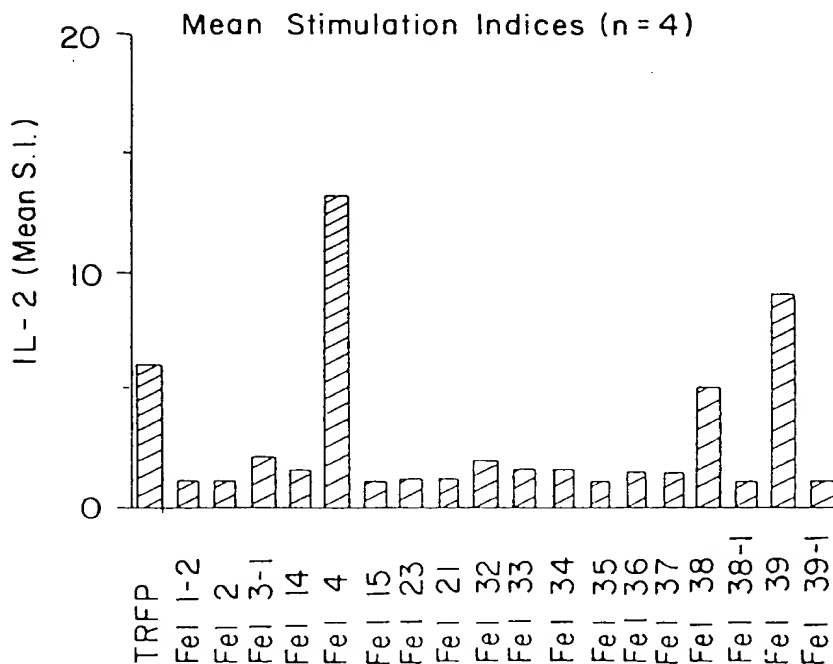


FIG. 22C

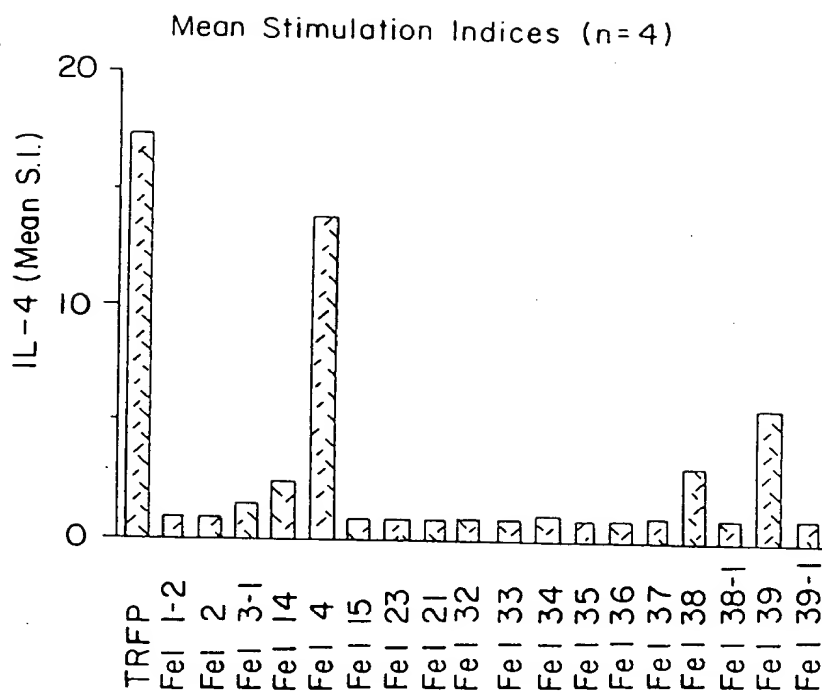


FIG. 23

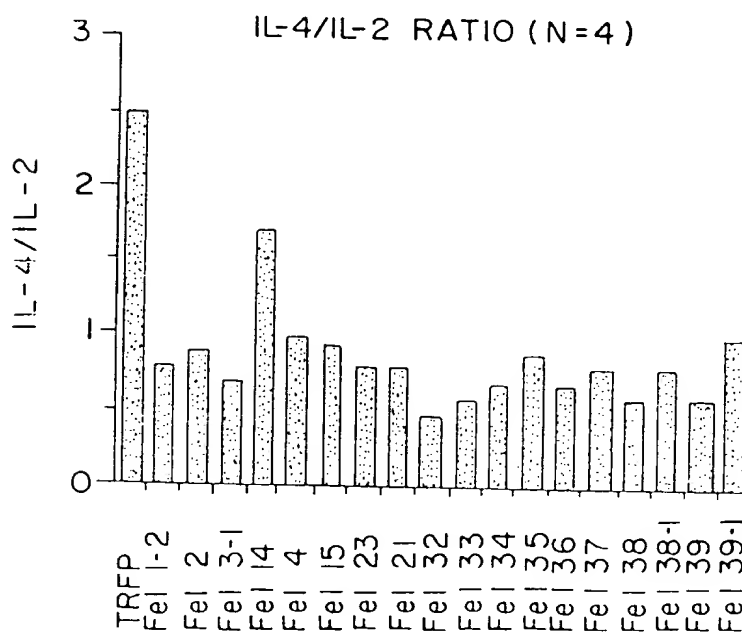
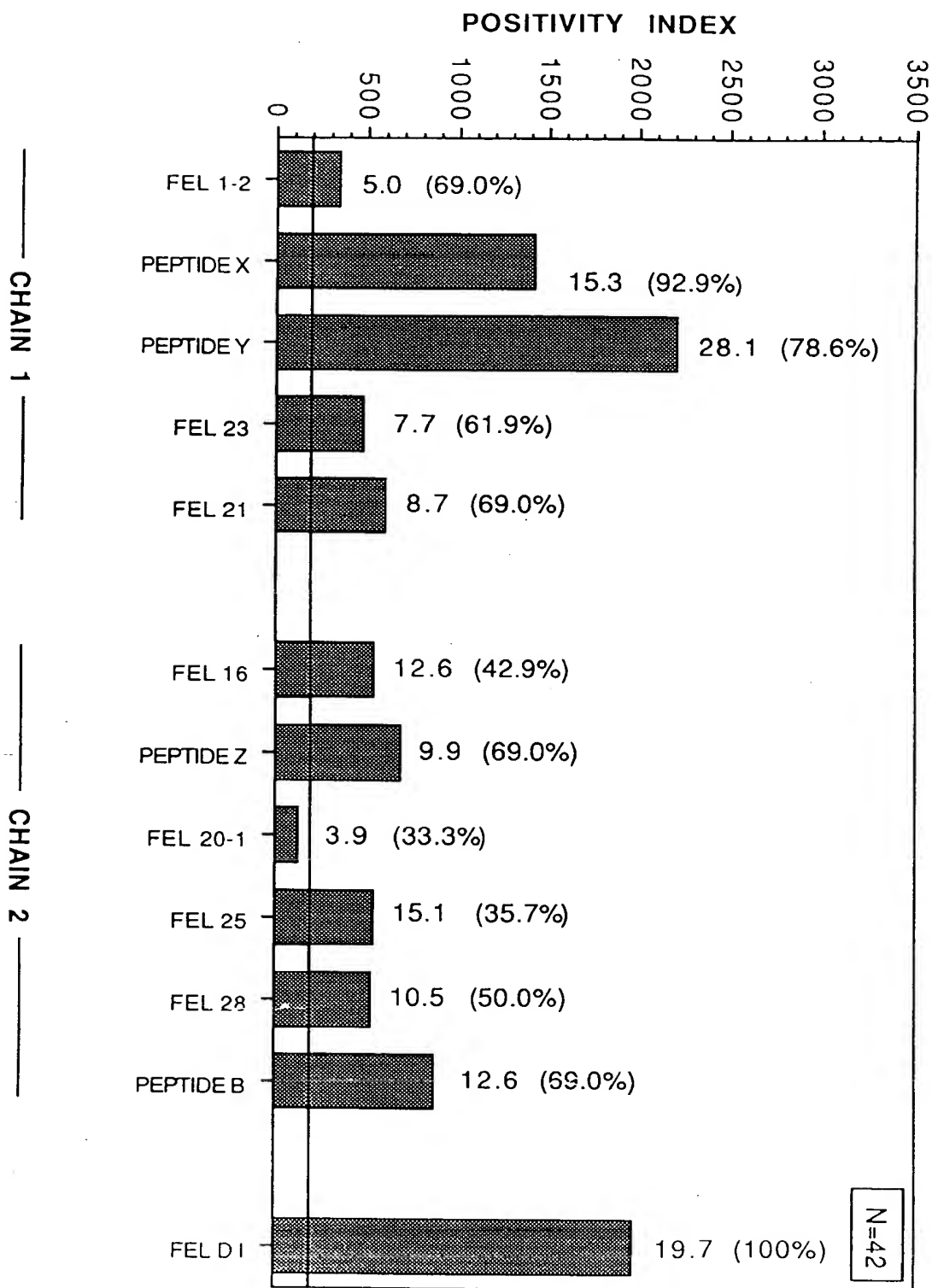


FIG. 24



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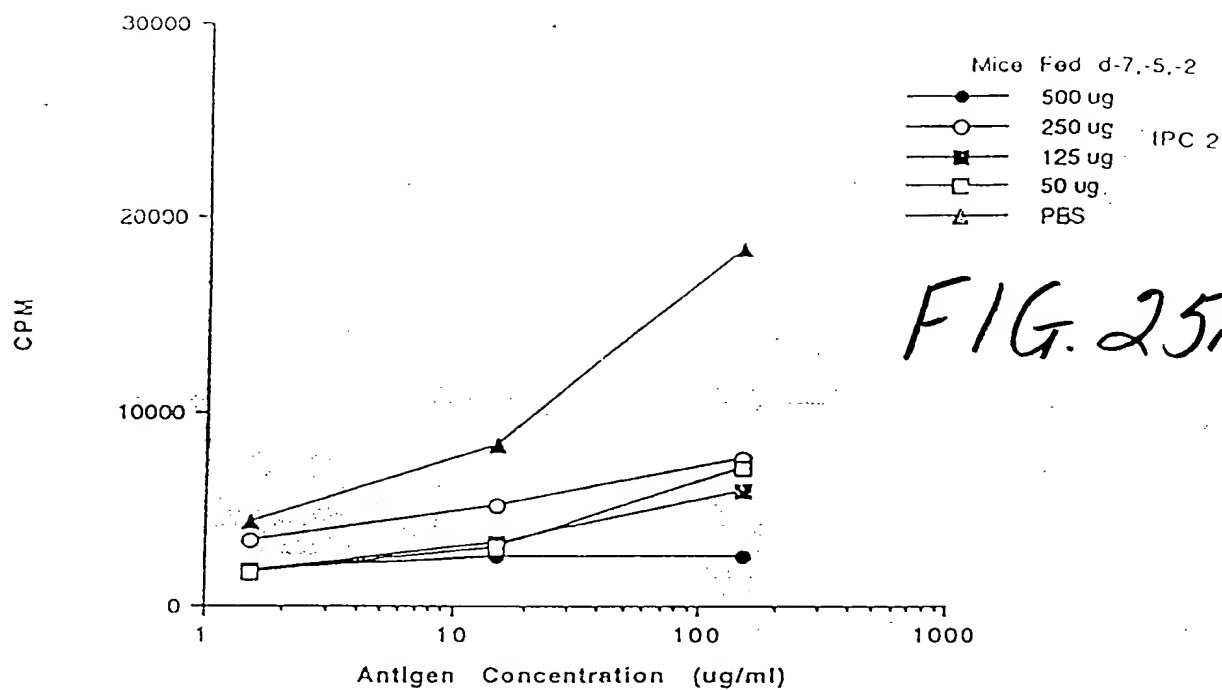


FIG. 25A

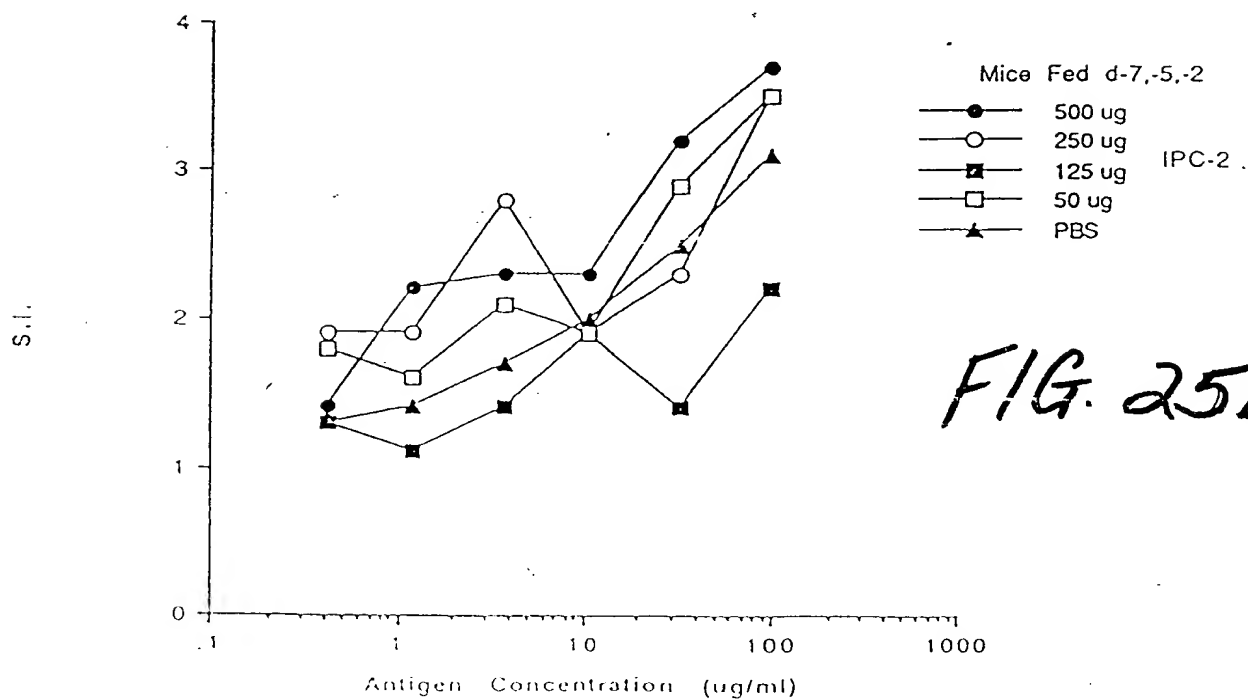


FIG. 25B

FIG. 26

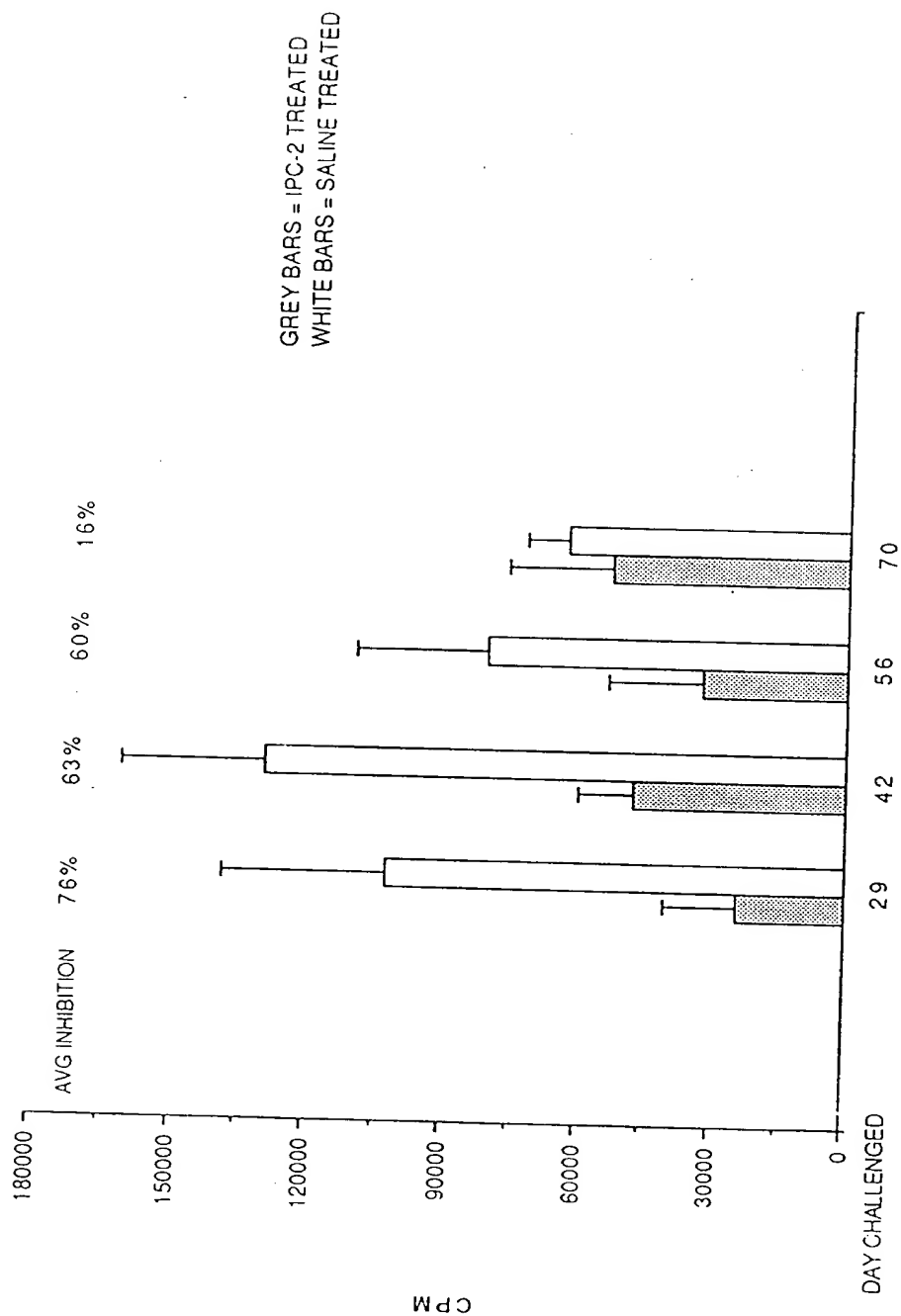
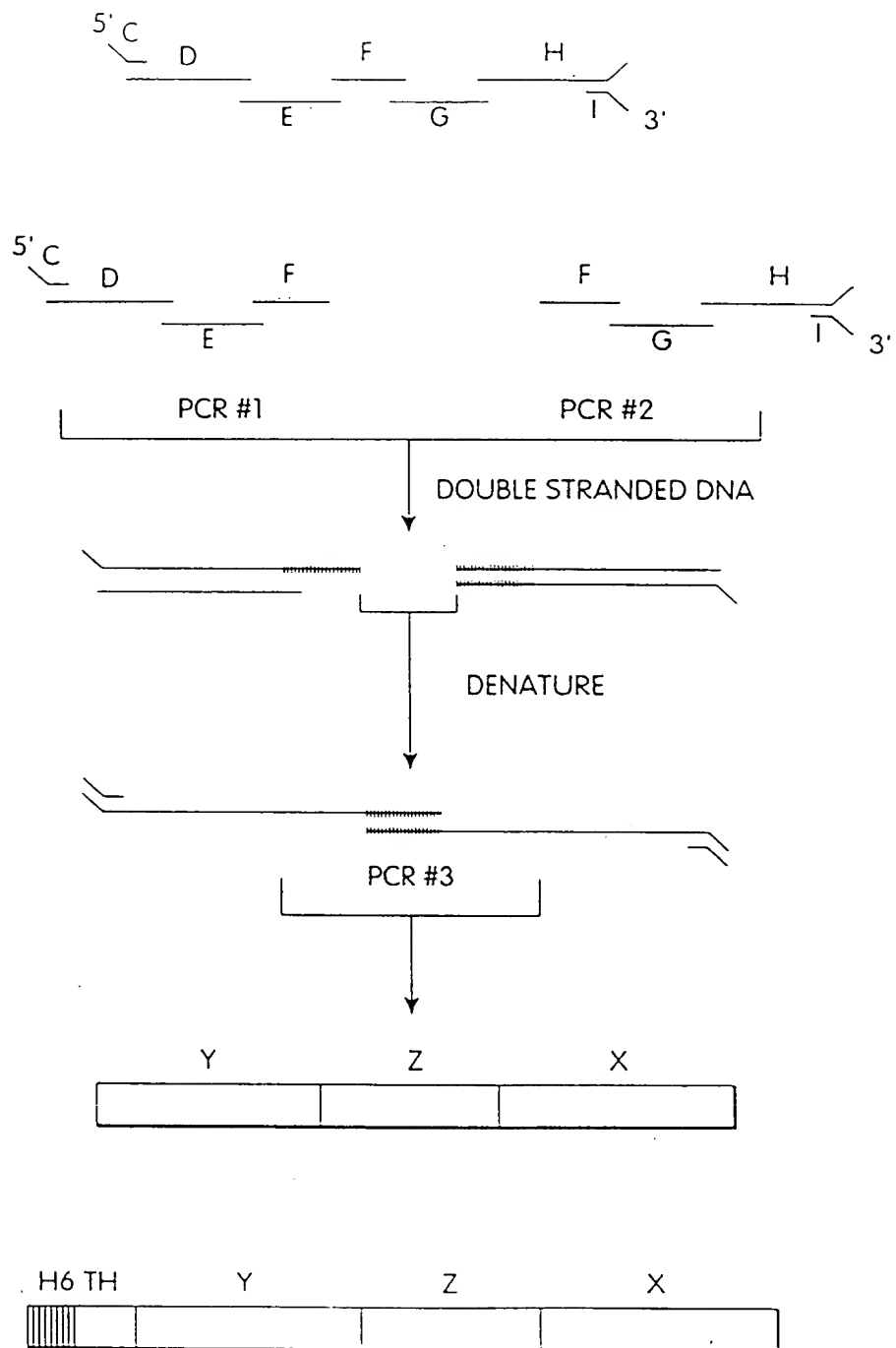
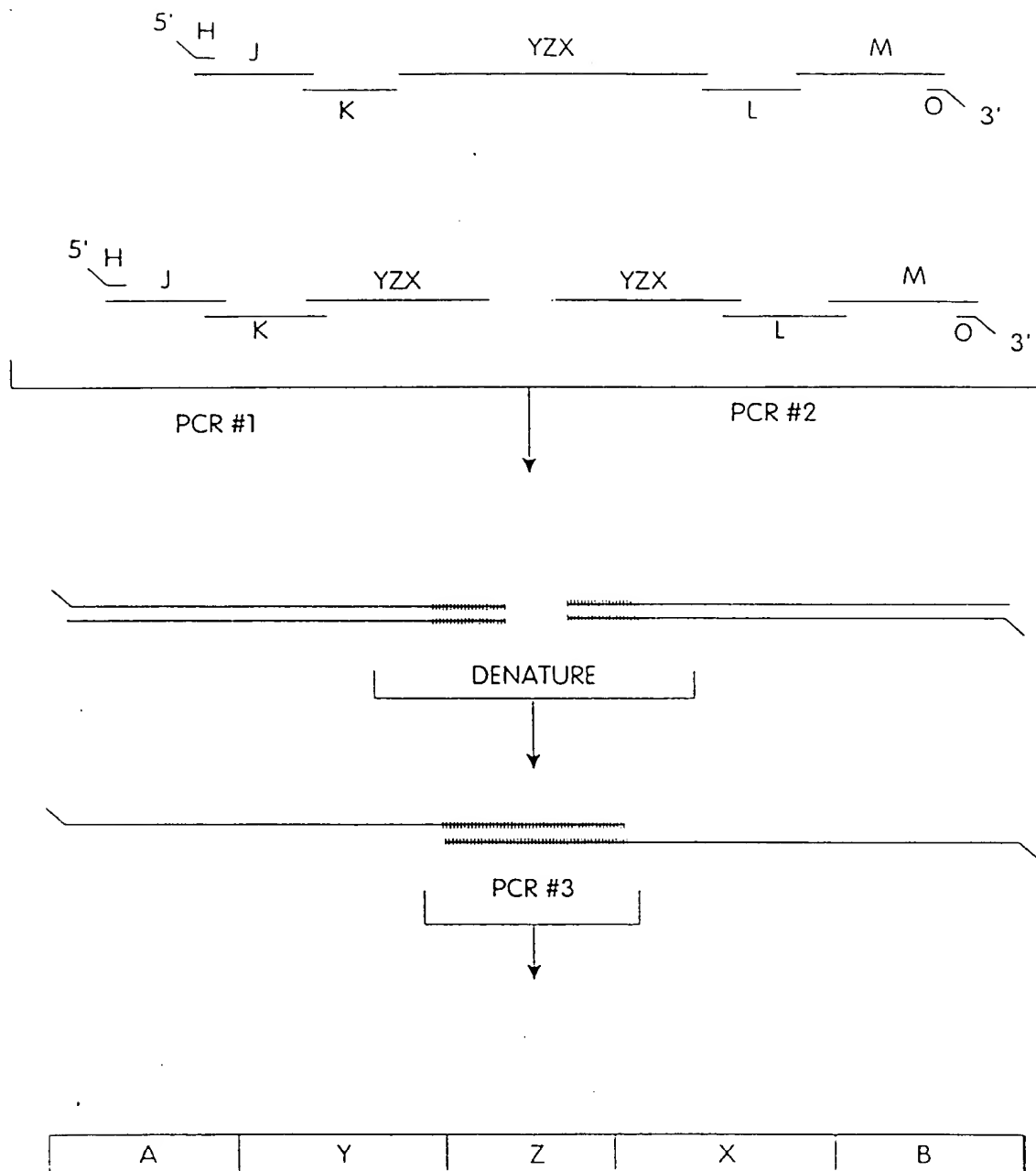


FIG. 27



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FIG. 28



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FIG. 29

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C	5'	BAM HI	GGGGATCCAAAGCTCTGCCGGTGT 3'	
			K A L P V V	
D	5'	BAM HI	GGGGATCCAAAGCTCTGCCGGTGTCTGGAAACGCTCGTATCTGAAAACTGCGTTGACGCTAAATGACCGAA	K A L P V V L E N A R I L K N C V D A K M T E
			GAAGACAAAGAA 3'	E D K E
E	3'		CTTCTTCTGTTTCTTAAGAAGCGACAACGATTGCCATTGCTTGACGACGACCTGGACAGAGAC 5'	E E D K E F A V A N G N E L L L D L S L
F	5'		CTGGACCTGTCTCTGACCAAAAGTTAACGCTACCGAACCGGAACGT 3'	L D L S L T K V N A T E P E R
G	3'		TGGCTTGGCCTTGCAATTGCACTGCAACTGGACAAGGACTGGCCCATGGGGCCCTG 5'	T E P E R K R D V D L F L T G T P D
H	5'		ACCGGTACCCCGGACGAATACGTTGAACAGGTTGCTCAGTACAAAGCTCTGCCGGTTAGTAGTCTAGACTGCAGAAG	T G T P D E Y V E Q V A Q Y K A L P V - - XBAl PSTI
			CTTGGATCCCC 3'	HINDIII ECORI

FIG. 29 (cont.)

I 3' CGAGACGGCCAAATCATCATGACGTCTTCGAACCTAGGG 5'
A L P V - - XBAI PSTI HINDIII ECORI

J 5' GGGGATCCGAAGAAGACAAAGAAACGGCTCTGTCTCTGCTG 3'
BAM HI E E D K E N A L S L L

K 3' GACAGAGACGACCTGTTTATAGATGTGGAGAGCGGACTTTCGAGACGGCCCAACAAGACCTT 5'
L S L L D K I Y T S P L K A L P V V L E

L 3' CGAGTCATGTTTCGAGACGGCCCAATACCCACTTCGACAAGTCTTGTGGCAACTT 5'
A Q Y K A L P V M G E A V Q N T V E

M 5' CAGAACACCGTTGAAGACCTGAAACTGAACACCCCTGGGTCGTTGAATGTAACTGCAGAAATCCCC 3'
Q N T V E D L K L N T L G R - PST I ECORI

N 5' GGGGATCCGAAGAAGACAAA 3'
BAM HI E E D K

O 3' TGAACCCCTCTACTTACATTGACGTCTTAAGGG 5'
T L G R - PST I ECORI

FIG. 30

↓
 ATGGGTCACCAACCAACCAACCAACCAATTCCTGGTCCCGGTGGATCC
 M G H H H H H H E F L V P R G S

 AAAGCTCTGCCGGTTGTTCTGGAAAACGCTCGTATCCTGAAAAACTGC
 K A L P V V L E N A R I L K N C

 GTTGACGCTAAATGACCGAAGAACAGACAAGAAATCTTCGCTGTGCT
 V D A K M T E E D K E F F A V A

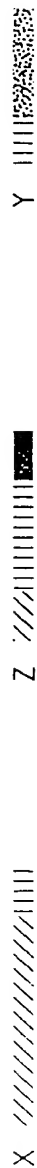
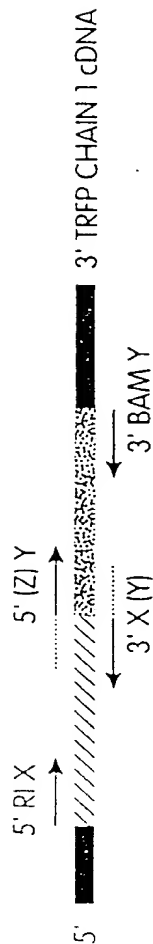
 AACGGTAACGAACTGCTGCTGGACCTGTCTCTGACCAAGTTAACGCT
 N G N E L L L D L S L T K V N A

 ACCGAACCGGAACGTAAACGTGACGTTGACCTGTTCCCTGACCGGTACC
 T E P E R K R D V D L F L T G T

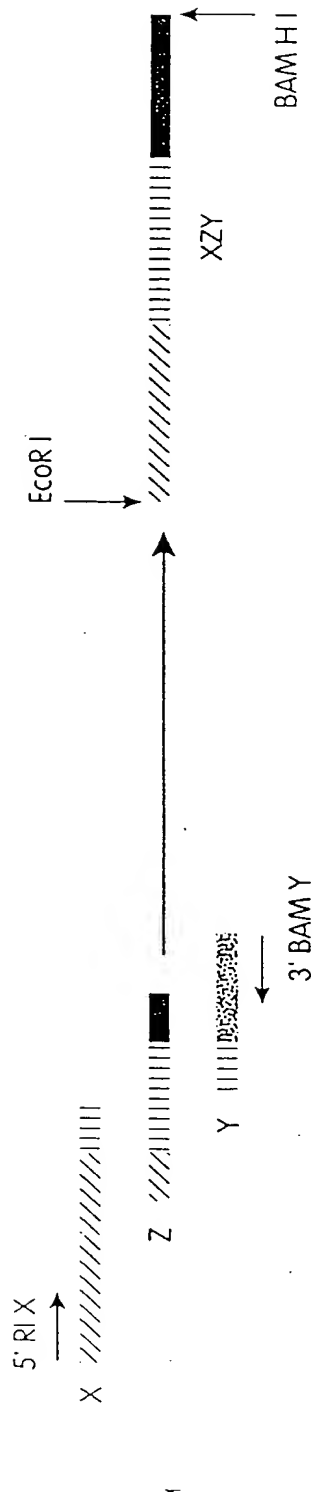
 CCGGACGAATACGTTGAACAGGTTGCTCAGTACAAAGCTCTGCCGGTT
 P D E Y V E Q V A Q Y K A L P V

FIG. 31

1) PCR INDIVIDUAL EPITOPES



2) LINK ISOLATED EPITOPES BY POOLING/PCR



5' PRIMERS

XZY CONSTRUCT

5' XRI 5'-GGGGAATTCAAGAGGGATGTTGACCTA-3'
ECOR I X

L P V | F F A V A N

5' (X) Z 5'-CTACCTGTATTTTTCGCGGTGGCCAAT-3'

X Z

5' (Z) Y 5' - CCAGAGAGAAAGCACTACCTGTAGTA - 3'

P E R | K A L P V V
Z | Y

YXZ CONSTRUCT

5' YRI 5'-GGGGAATTCAAAGCACTACCTGTAGTA-3'
ECOR I Y

D K E | K R D V D L
 5' (Y) X 5' -GATAAGGAGAAGAGGGATGTTGACCTA-3'
 Y X

L P V | F F A V A N
 5' (X) Z 5' -CTACCTGTATTTTTCGCGGTGGCCAAT-3'
 X | Z

ZXY CONSTRUCT

5' ZRI 5' -GGGGAATTCTTTGCGGTGGCCAATGGA-3'

ECOR I Z

5' (Z) X 5' -AAGAGGGATGTTGACCTATTC-3' X

[illegible]

3' PRIMERS

XZY CONSTRUCT

$\alpha N \quad \alpha A \quad \alpha V \quad \alpha A \quad \alpha F \quad \alpha F \mid \alpha V \quad \alpha P \quad \alpha L \quad \alpha A \quad \alpha K \quad \alpha Y$
 3' X (Z) 5'-ATTGGCCACCGCAAAAAAATACAGGTAGTGCTTTGTA-3'
 Z X
 $\alpha L \quad \alpha A \quad \alpha K \mid \alpha R \quad \alpha E \quad \alpha P \quad \alpha E \quad \alpha T \quad \alpha A$
 3' Z (Y) 5'-TAGTGCCTTTTCTCTCTGGTTCAGTAGC-3'
 Y Z
 $\alpha STOP \alpha E \quad \alpha K \quad \alpha D \quad \alpha E \quad \alpha E \quad \alpha T$
 3' Y BAM 5'-GGGGATCCTTACTCCTTATCCTCTTCTGT-3'
 BAMH I Y

YXZ CONSTRUCT

```

      αL αD αV αD αR αK | αE αK αD αE αE αT
3' Y (X)  5' -TAGGTCAACATCCCTCTTCTCCTTATCCTCTTCTGT-3'
              X                      Y
      αA αF αF | αV αP αL αA αK αY
3' X (Z)  5' -CGCAAAAAATACAGGTAGTGCTTTGTA-3'
              Z |                      X
      αSTOPαR αE αP αE αT αA
3' Z BAM  5' -GGGGATCCTTATCTCTCTGGTTCAGTAGC-3'
      BAMH I                      Z

```

ZXY CONSTRUCT

αL αD αV αD αR αK | αR αE αP αE αT αA αN
 3' Z (X) 5'-TAGGTCAACATCCCTCTTTCTCTCTGGTTCAGTAGCATT-3'
 X Z

αSTOPαE αK αD αE αE αT αM
 3' Y BAM 5'-GGGGATCCTCACTCCTTATCCTCTTCTGTCAT-3'
 BAMH I Y

FIG. 33

XZY

X	Y
KRDVDL	
KALPV	ATEPERKAL
FFAVAN	PERKALPVV
	TEEDKE

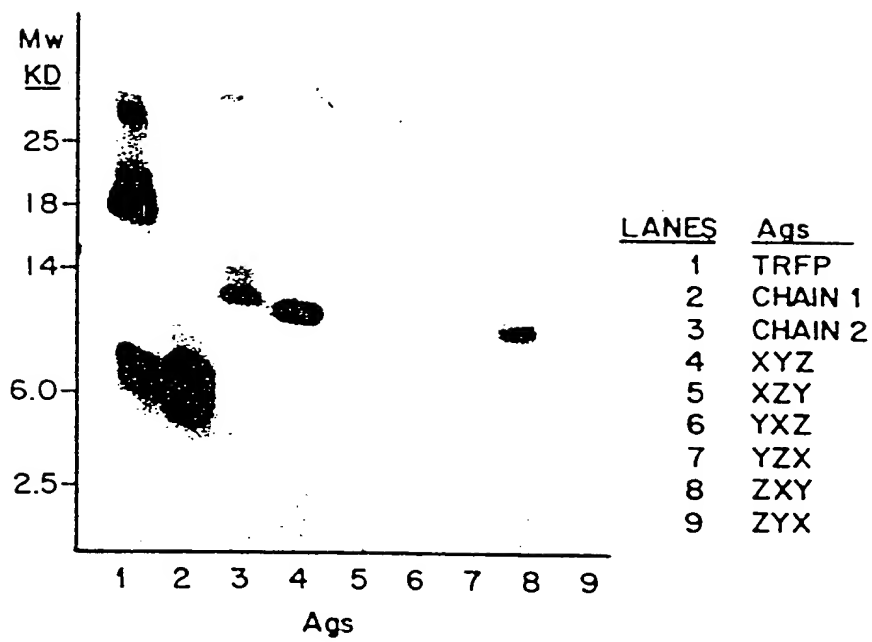
YXZ

Y	X	Z
KALPVV		
TEEDKE	KRDVDL	
	KRDVDL	
	KALPVFFA	
	LPVFFAVAN	
		ATEPER

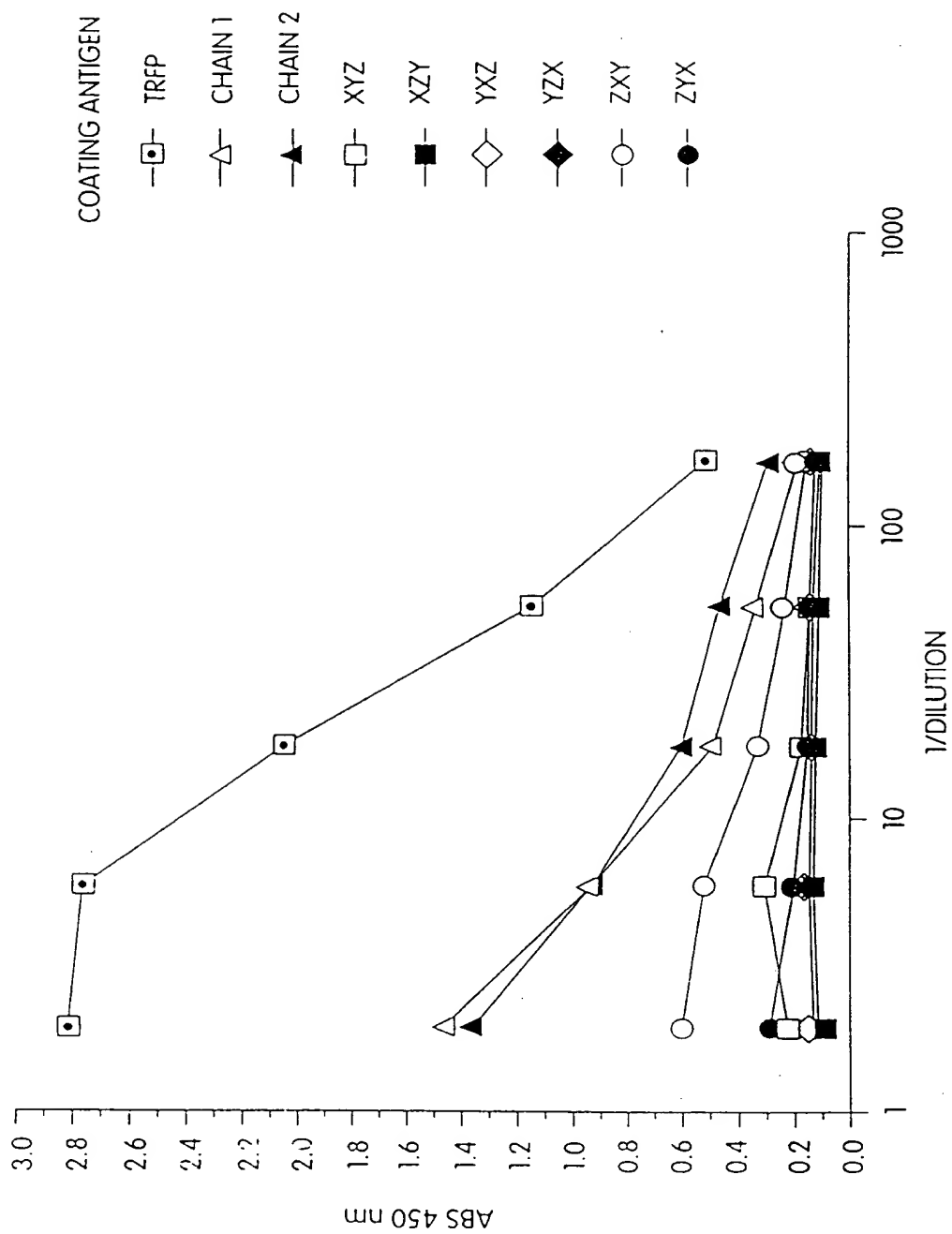
ZXY

Z	X	Y
FFAVANG		
NATEPER	KRDVDL	
	KRDVDLP	
		QYKALPVVL
		MTEEDKE

FIG. 34



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[illegible]

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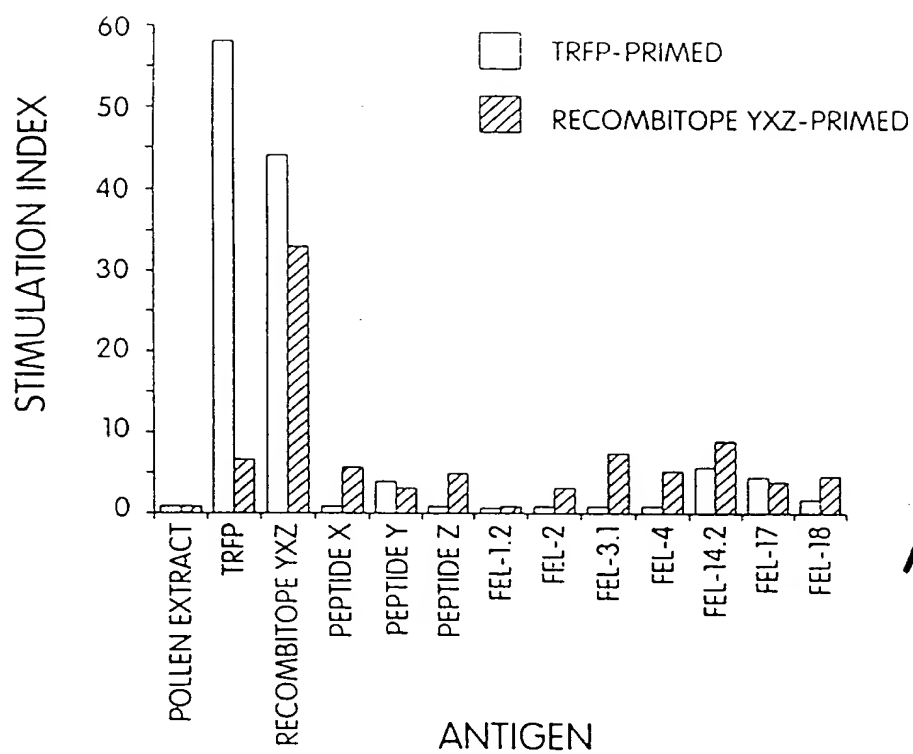


FIG. 36A

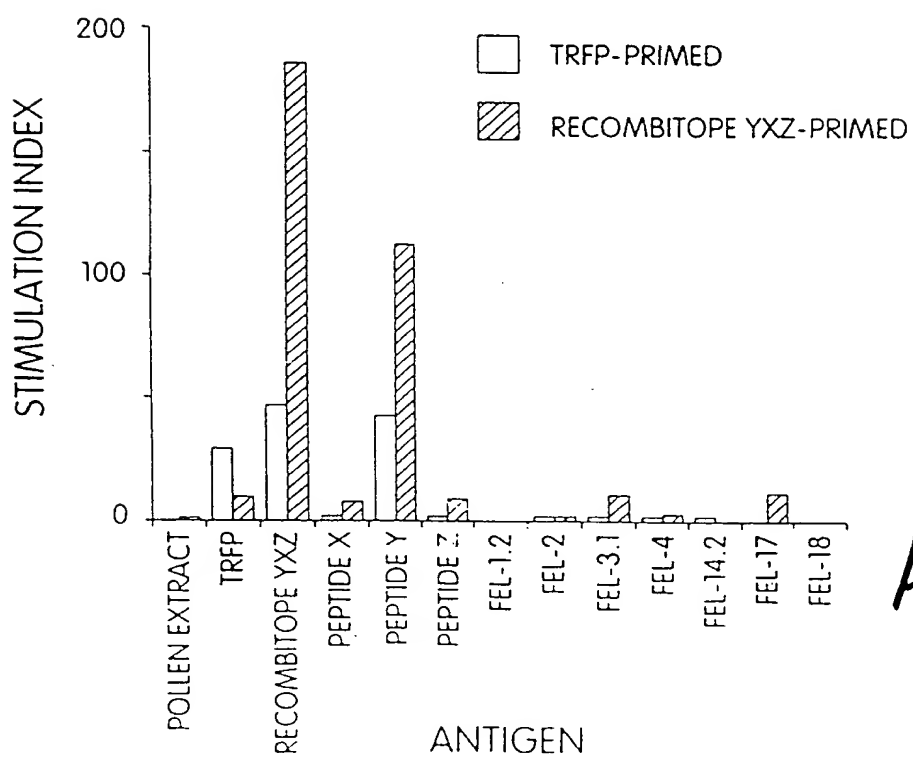


FIG. 36B

FIG. 36C

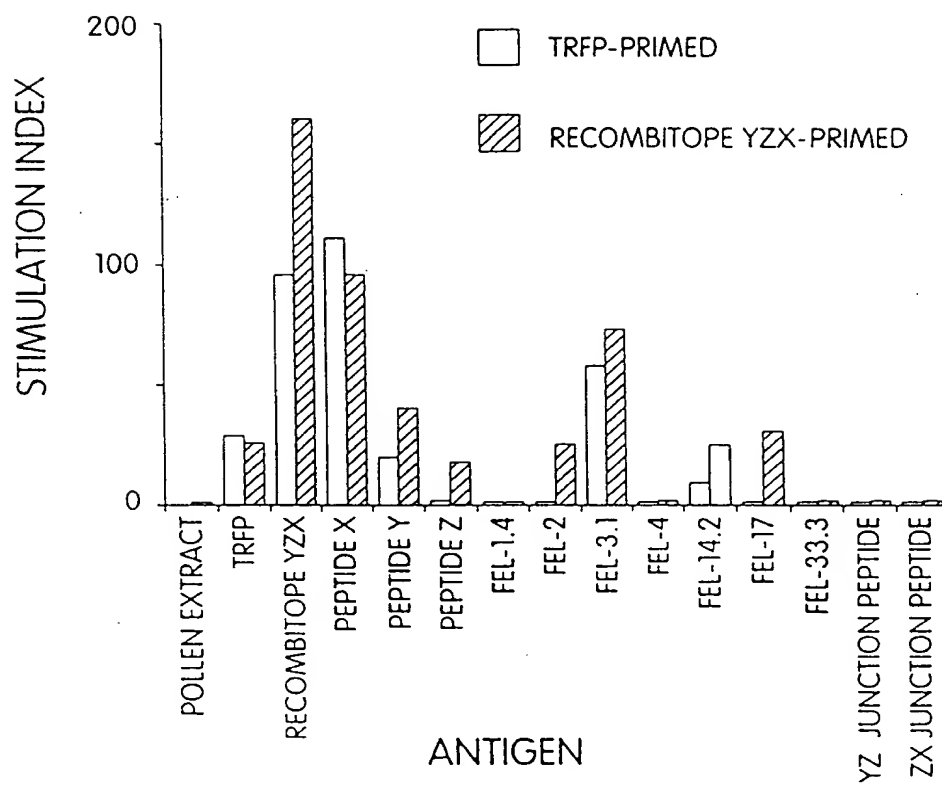


FIG. 37

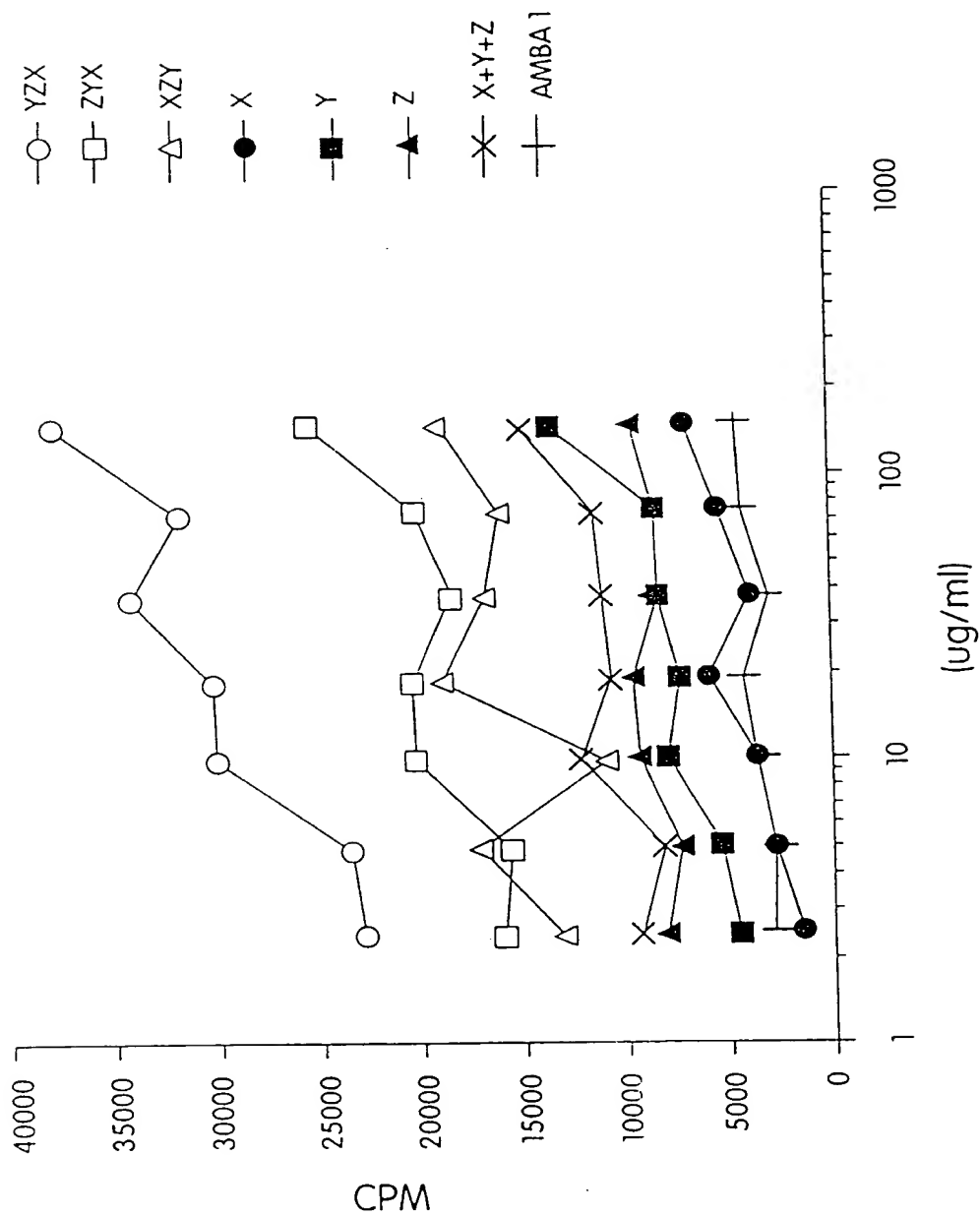
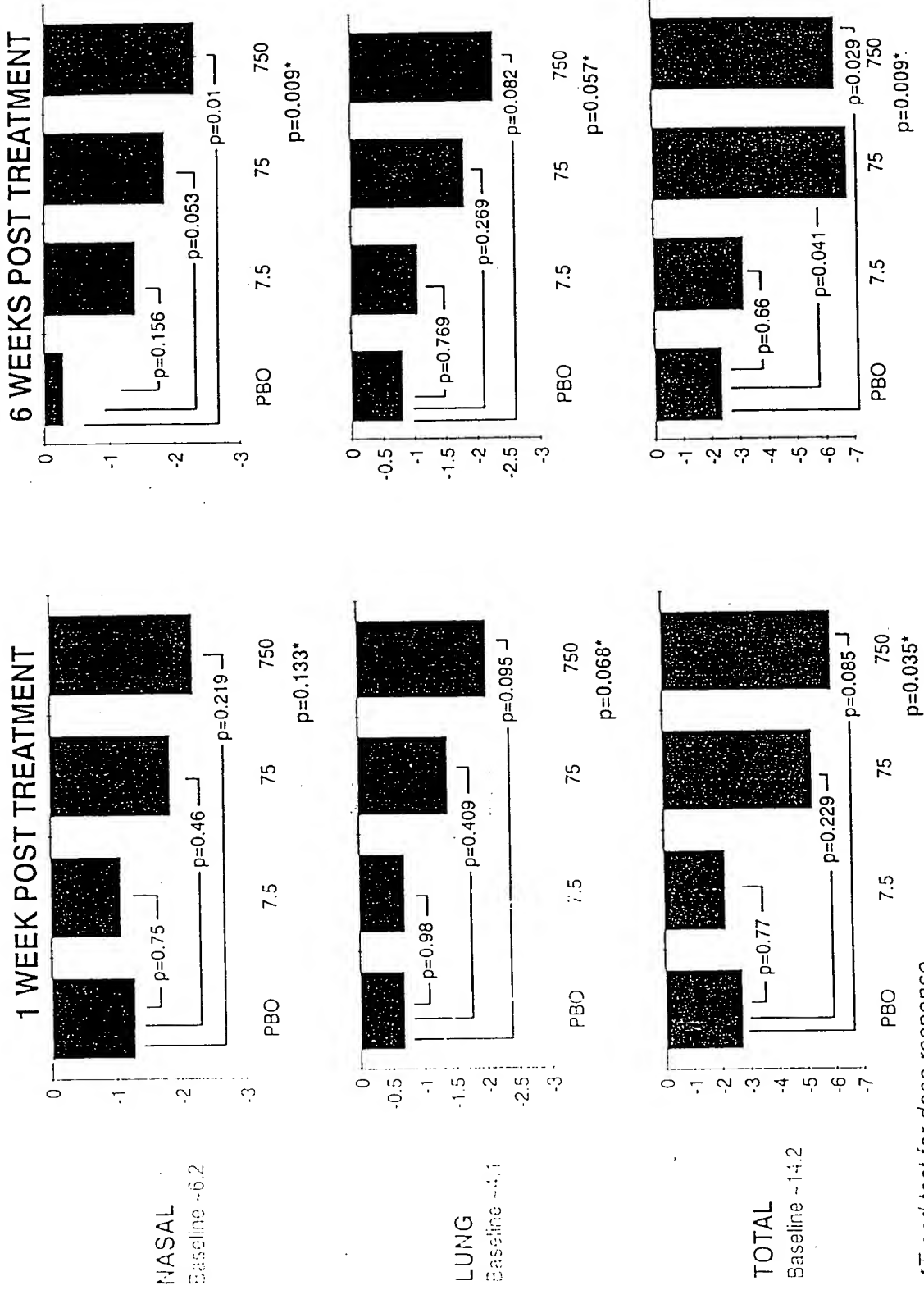


FIG. 38



*Trend test for dose response